REMARKS

Claims 11-28 are pending and under consideration. Claim 28 is added herein. Support for claim 28 appears in claim 11 as filed originally, and in paragraphs [0010] and [0011] of the specification. Further reconsideration is requested based on the foregoing amendment and the law is following remarks.

Response to Arguments:

The Applicants appreciate the consideration given to their arguments. The Applicants, however, are disappointed that their arguments were not found to be persuasive.

Advisory Action mailed July 26, 2007:

The Advisory Action asserts at the end of the first paragraph on the continuation sheet, that:

> Looking at the overall system as disclosed in Fig.4, Roy III distinguishes the transmitter block 70 and the receiver block 42, however reading closely to Col.14 line (48-54) Roy discloses that the transmitting and receiver are similar in structure.

Even if, however, the structure of transmitter block 70 were *similar* to the receiver block 42, that would still not amount to transmitter block 70 and receiver block 42 being the *same*. Since Roy, III, in fact, *distinguishes* the transmitter block 70 from the receiver block 42, as noted in the Advisory Action, they must *necessarily* be separate components, whether or not their *structures* are similar to each other. Roy, III, consequently, cannot show "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in the second clause of claim 11.

The Advisory Action asserts at the end of the second paragraph on the continuation sheet, that:

> The examiner directs the applicant to Fig.6 and (Col.12 line 65-Col.13 line 24) wherein the Roy III reference discloses wireless units 20, 22, 24 transmitting in the same channel are received by an array of sensors and receivers 42, these signals are than spatially demultiplexed by a demulitplexer 46. The information signal is than to be transmitted by an array of transmitters back to wireless units 20, 22, 24 using a multi-channel transmitter 70.

Roy, III, to the contrary, is describing Fig. 8 at column 13, lines 8-24, not Fig. 6. There is no evidence to suggest that the demultiplexed signals (50) being sent to signal demodulators (52) in Fig. 6 are the same multiple signals (64) being combined by a spatial multiplexer (66) into

signals (68) and transmitted to wireless units (20,22,24) by multichannel transmitters (70) in Fig. 8.

Fig. 6, rather, shows multiple signals from wireless units (20,22,24) being *received* by an array of sensors and receivers (42), spatially demultiplexed by a spatial demultiplexer (46), and sent to signal demodulators (52) . In particular, as described at column 12, lines 65, 66, and 67, continuing at column 13, lines 1-7:

> FIG. 6 is an illustration of the method used by this invention to overcome the aforementioned multiple signal reception problem at one or more base stations. Multiple signals from wireless units (20,22,24) transmitting in the same channel are received by an array of sensors and receivers (42). These cochannel signals are spatially demultiplexed by a spatial demultiplexer (46) which is controlled by a Spatial Division Multiple Access signal Processor (SDMAP) (48). The demultiplexed signals (50) are then sent to signal demodulators (52) as is well-known in prior art.

Fig. 8, on the other hand, shows multiple signals (64) being combined by a spatial multiplexer (66) into signals (68), which are sent to multichannel transmitters (70) and subsequently *transmitted* by an array of antennas to wireless units (20,22,24). In particular, as described at column 13, lines 10-17:

> Multiple signals (64) from signal modulators, assumed therein as all being in the same frequency channel for illustrative purposes, are appropriately combined by a spatial multiplexer (66) under control of the SDMAP (48) so as to eliminate all cochannel interference at the wireless units (20,22,24). These signals (68) are sent to multichannel transmitters (70) and subsequently transmitted by an array of antennas to wireless units (20,22,24).

Since, in Roy, III, multiple signals from wireless units (20,22,24) transmitting in the same channel are shown being received by an array of sensors and receivers (42) in *Fig. 6*, while signals (68) are shown being transmitted by multichannel transmitters (70) to wireless units (20,22,24) in *Fig. 8*, there is no basis for asserting that the *same* signal that is being received *from* wireless units 20, 22, and 24 in Fig. 6 is being transmitted *back* to wireless units 20, 22, and 24 in Fig. 8.

In Roy, III, moreover, wireless unit (20) is *precluded* from receiving any signal being transmitted to units (22) or (24). In particular, as described at column 13, lines 18-21:

> As indicated in the illustration, by appropriate design of the spatial multiplexer, wireless unit (20) receives none of the signal being transmitted to units (22) or (24), and similarly for the other two units.

Since, in Roy, III, wireless unit (20) receives none of the signal being transmitted to units (22) or (24), there is no basis for asserting that the signal that is being received from wireless units 20,

22, and 24 in Fig. 6 is being transmitted *back* to wireless units 20, 22, and 24 in Fig. 8, unless wireless unit (20) were receiving its *own* signal back.

Final Office Action mailed July 24, 2007:

The final Office Action asserts in section 1, in the second full paragraph at page 2, that:

> The examiner respectfully points to the applicant to the Roy III reference, specifically Col. 13 line 49-51 wherein the an embodiment of the of the invention includes that one receiver is assigned to each antenna as shown on Fig. 7.

Roy, III, however, is not "transmitting signals from" one of the receiver blocks 102, 104, or 106 associated with an SDMA processor in Fig. 7 "via at least two intermediate stations" to another of the receiver blocks 102, 104 and, 106, contrary to the implication in the final Office Action. Roy, III, in fact, is not transmitting signals from one of the receiver blocks 102, 104, or 106 to another of the receiver blocks 102, 104, or 106, at all. Thus, whether or not one receiver is assigned to each antenna is of no particular consequence.

As may be seen in Fig. 7, rather, each of receiver blocks 102, 104, and 106 receive the *same* frequency distribution 80. The output of the multichannel receivers, moreover, is a plurality of signals (112,114,116) for a *particular* (frequency) channel, not signals transmitted from one of the receiver blocks 102, 104, or 106 to another of the receiver blocks 102, 104, or 106. In particular, as described at column 13, lines and 53-56:

> The output of the multichannel receivers for a particular (frequency) channel is a plurality of signals (112,114,116), one signal from that channel for each antenna/receiver pair.

Since, in Roy, III, the output of the multichannel receivers for a particular (frequency) channel is a plurality of signals (112,114,116), Roy, III cannot show "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in the second clause of claim 11.

The SDMAP/Spatial Demultiplexer (120) of Roy, III, in fact, processes the signals as a *group*, rather than "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in, for example, claim 11. In particular, as described at column 13, lines 56, 57, and 58:

> These signals are processed as a group by the SDMAP/Spatial Demultiplexer (120) so as to recover the original transmitted signals (122,124,126).

Since, in Roy, III, the signals are processed as a group by the SDMAP/Spatial Demultiplexer (120), Roy, III cannot show "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in the second clause of claim 11.

The final Office Action asserts further in section 1, in lines 16-21 at page 2, that:

> The examiner respectfully directs the applicant to the Roy III reference, specifically (Col. 13 line 58-61) which discloses that an embodiment of the invention which discloses an SDMAP and spatial demultiplexer is dedicated to each channel, the receivers will have to communicate with each other in order to receive and transmit on multiple different channels.

Even if, however, receiver blocks 102, 104, or 106 communicate with each *other*, that still doers not amount to "signaling between the at least two intermediate stations," as recited in the third clause of claim 11. There are no intermediate stations in Roy, III to configure transmission from one of the receiver blocks 102, 104, or 106 to another of the receiver blocks 102, 104, or 106, contrary to the implication in the final Office Action. Since there are no intermediate stations in Roy, III to configure transmission from one of the receiver blocks 102, 104, or 106 to another of the receiver blocks 102, 104, or 106, Roy, III cannot show "signaling between the at least two intermediate stations," as recited in the third clause of claim 11. Further reconsideration is thus requested.

Claim Rejections - 35 U.S.C. § 102:

Claims 11-26 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,269,445 to Roy, III et al. (hereinafter "Roy, III"). The rejection is traversed. Reconsideration is earnestly solicited.

The second clause of claim 11 recites:

> Transmitting signals from a first radio station via at least two intermediate stations to a second radio station.

Roy, III neither teaches, discloses, nor suggests "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in claim 11. Fig. 6 of Roy, III, rather, only shows multiple signal *reception* at one or more base stations. No description of "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," appears in Fig. 6, contrary to the assertion in the final Office Action in section 3, at page 3.

Moreover, in Roy, III, multiple signals from wireless units (20,22,24) are only *received* by an array of sensors and receivers (42), spatially demultiplexed by a spatial demultiplexer (46), and sent to signal demodulators (52). In particular, as described at column 12, lines 65, 66, and 67, continuing at column 13, lines 1-7:

> FIG. 6 is an illustration of the method used by this invention to overcome the aforementioned multiple signal reception problem at one or more base stations.

> Multiple signals from wireless units (20,22,24) transmitting in the same channel are received by an array of sensors and receivers (42). These cochannel signals are spatially demultiplexed by a spatial demultiplexer (46) which is controlled by a Spatial Division Multiple Access signal Processor (SDMAP) (48). The demultiplexed signals (50) are then sent to signal demodulators (52) as is well-known in prior art.

Since, in Roy, III, multiple signals from wireless units (20,22,24) transmitting in the same channel are received by an array of sensors and receivers (42), Roy, III cannot show "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in, for example, claim 11.

Fig. 9 of Roy, III, for its part, only shows the SDMAP/Spatial multiplexer (138) *combining* the signals (132,134,136) to provide one output for the particular channel (C1 in FIG. 9) in each transmitter (152,154,156). No description of "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," appears in Fig. 9, contrary to the assertion in the final Office Action in section 3, at page 3. In particular, as described at column 14, lines 55-65:

> The function of the SDMAP/Spatial multiplexer (138) shown in FIG. 9 is to multiplex one or more signals (132,134,136) into a particular channel (C1 in FIG. 9), but different spatial channels. The SDMAP/Spatial multiplexer (138) appropriately combines the signals (132,134,136) and provides one output for the particular channel (C1 in FIG. 9) in each transmitter (152,154,156). Herein, appropriately combined is defined to be combined so that each wireless unit receives only the signal intended for it. No other signals arrive at that particular wireless unit receiving in that (frequency) channel. This is a unique aspect of the invention.

Since, in Roy, III, the SDMAP/Spatial multiplexer (138) combines the signals (132,134,136) to provide one output for the particular channel (C1 in FIG. 9) in each transmitter (152,154,156), Roy, III cannot show "transmitting signals from a first radio station via at least two intermediate stations to a second radio station," as recited in, for example, claim 11.

Nor is there any disclosure in Roy, III, of any signals being transmitted via *both* the receivers (102,104,106) and the transmitters (152,154,156), contrary to the implication in the final Office Action. The demultiplexed signals (50) *received* from the wireless units (20,22,24) by an array of sensors and receivers (42) are not the same signals (64) that are *sent* to spatial multiplexers (66) for transmission to the wireless units, as indicated by the *different* reference numbers 50 and 64 with which they are identified. Roy, III is thus not transmitting signals from a first radio station 20 to a second radio station 24, contrary to the assertion in the final Office Action in section 3, at page 3.

The third clause of claim 11 recites:

> Signaling between the at least two intermediate stations to configure transmission from the first radio station to the second radio station.

Roy, III neither teaches, discloses, nor suggests "signaling between the at least two intermediate stations to configure transmission from the first radio station to the second radio station," as recited in claim 11. In Roy, III, rather, the multichannel *receiver* (102,104,106), to which the final Office Action analogizes an intermediate station of the claimed invention, takes an antenna input and has one output for each frequency channel which it is capable of processing, *without* any interaction with the transmitters (152,154,156) at all. In particular, as described at column 13, lines 44-51:

> The multichannel receiver takes an antenna input and has one output for each frequency channel which it is capable of processing. For example, in current analog cellular systems, the receiver consists of a bank of bandpass filters, one such filter tuned to each of the frequency channels assigned to that base station. In one embodiment of this invention, one such receiver is assigned to each antenna as shown in FIG. 7 (102,104,106).

Similarly, the multichannel transmitters (152,154,156), to which the final Office Action also analogizes the intermediate station of the claimed invention, combine the outputs of each channel assigned to the base station for the purpose of transmission of the signals through the associated antenna to the wireless units, *without* any interaction with the receivers (102,104,106) at all. In particular, as described at column 14, lines 48-53:

> Multichannel transmitters (70) similar in structure to the receivers (42) are employed, there being one transmitter for each of the m_{tx} transmitting antennas as shown in FIG. 9 (152,154,156). Each transmitter appropriately combines the outputs of each channel assigned to the base station for the purpose of transmission of the signals through the associated antenna to the wireless units as in current systems.

Since, in Roy, III, the multichannel receiver (102,104,106) has no interaction with the multichannel transmitter (152,154,156), Roy, III cannot show "signaling between the at least two intermediate stations to configure transmission from the first radio station to the second radio station," as recited in claim 11. Claim 11 is submitted to be allowable. Withdrawal of the rejection of claim 11 is earnestly solicited.

Claims 12-26 depend from claim 11 and add further distinguishing elements. Claims 12-26 are thus also submitted to be allowable. Withdrawal of the rejection of claims 12-26 is also earnestly solicited.

<u>New claim 28:</u>

The second, third, and fourth clauses of 28 recite:

Transmitting a signal from a first radio station to a first intermediate station;
transmitting the signal from the first intermediate station to a second intermediate station; and
transmitting the signal from the second intermediate station to a second radio station.

None of the cited references teach, disclose, or suggest "transmitting a signal from a first radio station to a first intermediate station; transmitting the signal from the first intermediate station to a second intermediate station; and transmitting the signal from the second intermediate station to a second radio station," as recited in claim 28. Claim 28 is thus believed to be allowable.

Allowable subject matter:

Since no specific grounds of rejection were lodged against claim 27, claim 27 is presumed to contain allowable subject matter.

Conclusion:

Accordingly, in view of the reasons given above, it is submitted that all of claims 11-28 are allowable over the cited references. Allowance of all claims 11-28 and of this entire application is therefore respectfully requested.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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